

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re PATENT APPLICATION of:
JUHA A. RASANEN , ET AL.

Confirmation Number: 1005

Application No.: 09/869,069

Group Art Unit: 2616

Filed: June 22, 2001

Examiner: ABELSON, Ronald B.

Title: FLOW CONTROL METHOD IN A TELECOMMUNICATIONS SYSTEM

ARGUMENTS SUBMITTED WITH PRE-APPEAL BRIEF REQUEST FOR REVIEW

MS APPEAL

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the Final Office Action dated March 16, 2007, and in conjunction with the “Notice of Appeal” and the “Pre-Appeal Brief Request for Review” filed concurrently herewith, the following arguments for patentability over the art of record are submitted for consideration by the Appeal Conferees as follows:

I. REJECTIONS TO BE REVIEWED UPON APPEAL

The grounds of rejection submitted for review are those identified in the Final Office Action, and include:

- A. Unpatentability rejection of claims 23, 24, and 27 under 35 U.S.C. §103(a), as allegedly being unpatentable over Chuah (US 6,400,695) in view of Shimojo (US 5,787,072);
- B. Unpatentability rejection of claims 1, 14, and 28 under 35 U.S.C. §103(a), as allegedly being unpatentable over Chuah in view of Shimojo and Edholm (US 6,600,721);
- C. Unpatentability rejection of claims 3 and 6 under 35 U.S.C. §103(a), as allegedly being unpatentable over Chuah in view of Shimojo, Edholm, and Akiyoshi (US 5,668,812);
- D. Unpatentability rejection of claims 7, 18, and 29 under 35 U.S.C. §103(a), as allegedly being unpatentable over Chuah in view of Shimojo, Akiyoshi, and Williams (US 6,317,455); and
- E. Unpatentability rejection of claims 8-12, 19, 21, 25, and 26 under 35 U.S.C. §103(a), as allegedly being unpatentable over Chuah in view of Shimojo, Akiyoshi, and Edholm.

Due to page limits, each rejection will not be analyzed separately. Instead, the Appeal Conferees are respectfully requested to analogize the general and specific distinctions below to all pending rejections.

II. GENERAL DISTINCTIONS OVER THE APPLIED ART

Discussion of Chuah et al.

Chuah merely discloses a conventional UMTS access network and UMTS protocol stacks (see, Figs. 1 and 2). Thus, the LAC/LRC/MAC are used in the radio interface Uu, and LAC/RLC/IP protocols are used in the interface Iub between node B and the radio network controller RNC. ATM (Asynchronous Transfer Mode) may be used in the L2 layer at the interface Iub.

As recognized by the Examiner, the RLC/MAC protocols at the radio interface Uu support flow control, whereas the ATM protocol in layer L2 at the interface Iub does not. Accordingly, ***the radio interface Uu does not correspond to a first connection leg, and interface Iub does not correspond to an intermediate second connection leg as variously recited in the rejected claims.***

The Examiner has incorrectly concluded that the connection leg between another user equipment 4 and another node-B6 in FIG. 1 corresponds with the claimed third connection leg. However, Chuah's leg is also a radio interface Uu ***in a totally different subnetwork 18***. Thus, the connection leg between the user equipment 4 and node B6 has ***no relationship*** to the other two connections. As a result, the Examiner's proposed interpretation of ***Chuah fails to teach the variously claimed third connection leg*** in combination with the first and second connections.

Further, the Examiner incorrectly asserts that Chuah's node B6, which is located between the radio interface and the link to the RNC, teaches the first network element of the claimed mobile communications system between the first and second legs, and that the other node B6, which has the radio connection with the user equipment 4, establishes the second element of the mobile communication system between the second and third legs as claimed. However, this other node B6 is not located ***between*** the second leg (which, according to the Examiner's interpretation, is between the first node B6 and the RNC10) and the alleged third connection leg (the second radio connection). The network element 10 to which the alleged second connection leg terminates is RNC10. Thus, the third connection leg would necessarily be a connection on the other side of the RNC10, which is contrary to the Examiner's contentions.

As further admitted by the Examiner, Chuah fails to teach or suggest first and second network elements configured to tunnel lower level flow control information through the lower transmission protocol level and the second leg between the first and third legs in order to provide end-to-end flow control and thereby data integrity over the connection on the lower transmission protocol layer. The Examiner relies upon Shimojo at col. 1:12-14 and col. 3:48-57 as allegedly providing this teaching.

Discussion of Shimojo

Generally, Shimojo relates to flow control between a pair of devices having an ATM network in between (*i.e.*, no real first, second, and third legs exist in Shimojo, as in Appellants' claim). In contrast in Appellants' invention as variously claimed, flow control is provided between a pair of devices at the ends of the first leg, and flow control is also provided between a pair of devices at the ends of the third leg. The flow control information is tunnelled between the devices connecting the first and third legs through a second leg to allow complete, end-to-end flow control. Thus, Shimojo has only one end-to-end segment or leg (between a single pair of devices) from the flow control point of view, whereas in the claimed invention, there are three flow control legs, each between a different pair of devices.

More specifically, the portion of Shimojo at col. 3:48-57 referred to by the Examiner relates to operation of an ATM switch that does not have ***any*** flow control function. As illustrated in FIG. 2 and disclosed in Shimojo at col. 4, lines 1-10, such a switch merely switches the ATM cells through from an input port to an output port so that there is end-to-end ATM cell traffic (*i.e.*, effectively a single leg from the flow control point of view) between the single pair of apparatus having flow control. Thus, all ATM traffic is effectively tunnelled. When there is a plurality of ATM switches on the route, each switch passes the ATM cells through.

Contrary to the Examiner's assertions, ***these portions of Shimojo do not teach or suggest a first connection leg supporting a flow control*** on a lower transmission protocol level underlying the user level between a first flow control apparatus and a first ATM switch. That is, these devices do not establish a device pair having a flow control therebetween. This first connection leg does not support flow control because the ATM switch does not support flow control towards the first flow control apparatus. Similarly, at the opposite end of the connection, ***there is no third connection leg supporting a flow control*** on a lower transmission protocol level underlying the user level between a second ATM switch and a second flow control apparatus, *i.e.*, these devices do not establish a pair having a flow control therebetween. This third connection leg does not support flow control because the second ATM switch does not support flow control towards the second flow control apparatus in Shimojo. On the intermediate connection leg between the first and second ATM, ***there is no flow control either, since neither of the ATM switches support flow control***. Only the end apparatus use and support flow control, *i.e.*, there is effectively only one flow control leg between the two apparatus at the ends of the leg.

In addition, ***the Examiner mischaracterizes the teachings of Shimojo***, by asserting on page 4 of the Final Official Action that Shimojo discloses tunnelling flow control information through the lower transmission protocol level at col. 1:12-14 and col. 3:48-57. In fact, Shimojo actually teaches something quite the opposite at col. 3:46 through col. 4:17 and FIG. 2, by disclosing that ATM nodes, which have no

flow control function, suffer from severe disadvantages regarding efficient utilization of network resources, and also that tunnelling techniques pose problems, and are therefore undesirable. ***The solutions proposed by Shimojo exclude tunnelling***, and instead use one of two techniques, the so-called “credit method” (see col. 6:57 through col. 7:21) and the so-called “rate-based control” (see col. 7:22 through col. 8:19).

Thus, ***Shimojo explicitly teaches away from the variously claimed invention*** in at least two aspects by teaching that ***each*** switch node ***must be*** provided with a flow control function (apparently to avoid use of tunnelling), ***and that Appellants’ variously recited tunnelling function is undesirable*** due, at least in part, to an assertion of inefficient bandwidth utilization.

Thus, if a person with skill in the art had applied the teachings of Shimojo in the system of Chuah, they would have necessarily provided each and every intermediate node that did not initially support flow control with a flow control apparatus providing such support, and would have avoided using an “undesirable” (by the teachings of Shimojo) tunnelling technique.

III. SPECIFIC DEFICIENCIES OF THE APPLIED ART

A. The Examiner has not established a *prima facie* case of unpatentability of claims 23, 24, and 27 under 35 U.S.C. §103(a) over Chuah (US 6,400,695) in view of Shimojo (US 5,787,072).

1. Chuah in view of Shimojo do not teach or suggest all the claimed limitations.

In connection with independent claim 23, the combination of art does not teach or suggest a mobile communications system that includes, among other features, “...a third connection leg supporting flow control on the lower transmission protocol level, a first network element of the mobile communications system between the first and second legs, a second network element of the mobile communications system between the second and third legs, wherein the first and second network elements are configured to tunnel lower level flow control information through the lower transmission protocol level of the second leg between said first and third legs in order to provide end-to-end flow control....”

The combination of references applied by the Examiner have similar deficiencies with respect to not teaching all the limitations of independent claims 24 and 27 in this rejection. In the interests of brevity necessary to meet the page limits associated with the Pre-Appeal Brief Request for Review, the specific deficiencies of these claims will not be explicitly stated except to point out the analogies between the limitations in claim 23 and the other independent claims on appeal.

2. There is no “rational reason” to combine Chuah with Shimojo because Shimojo clearly teaches away from the claimed invention.

The incorporation of Shimojo’s teachings in Chuah’s system would result in a system in which ***all*** intermediate nodes would support L2 flow control such that the system would necessarily exclude ***any*** legs

that would not support L2 flow control. Further, *Shimojo explicitly teaches away from the use of tunnelling techniques*. Accordingly, a person with skill in the art would not have a rational reason to combine Chuah with Shimojo in the manner suggested by the Examiner.

B. The Examiner has not established a *prima facie* case of unpatentability of rejected independent claims 1, 7, 8, 10-12, 14, 18-19, 21, 23-28 under 35 U.S.C. §103(a) over Chuah and Shimojo in various combinations with Edholm, Akiyoshi, and Williams.

1. The deficiencies of Chuah and Shimojo identified with respect to independent claim 23 equally pertain to the rejections of the remaining independent claims.

Chuah in view of Shimojo at least do not teach or suggest limitations pertaining to the various recitations of a third connection leg supporting flow control on the lower transmission protocol level, and tunnelling lower level flow control information through the lower transmission protocol level of the second leg between said first and third legs in order to provide end-to-end flow control. None of Edholm, Newton, or Williams remedies the above-identified deficiencies of Chuah in combination with Shimojo, analyzed above, for example, in connection with independent claim 23.

Appellants also point out that, with respect to the rejection of independent claim 1, the Examiner relies upon Edholm as teaching the use of “in-band signalling”. However, *Edholm at col. 1:36-44 actually teaches away from the use of Appellants’ recited in-band signalling by stating that in-band flow control is inefficient and requires additional hardware to implement*. Thus, Edholm does not teach that for which the Examiner offers it.

Accordingly, all claims on appeal, *i.e.*, claims 1, 3-12, 14, 18, 19, 21 and 23-30, are submitted as being allowable over the combination of art suggested by the Examiner, as analyzed above. The Appeal Conferees are urged to consider the *entire* teachings of the applied art, withdraw the rejections, and to pass the application to issue.

For any fees that may be due during the pendency of this application, please charge Deposit Account Number 03-3975 from which the Undersigned is authorized to draw.

Respectfully submitted,
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